

Kidney and Urologic Diseases

Summary of Methods and Data for Estimate of Costs of Illness

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|---|-----------------|
| 1. Estimated Total Economic Cost | \$ 40.3 billion |
| Estimated Direct Cost | \$ 26.2 billion |
| Estimated Indirect Cost | \$ 14.1 billion |
| Reference Year | 1985 |
| IC Providing the Estimate | NIDDK |
| | |
| Direct Costs Include: Other related nonhealth costs | No |
| Indirect Costs Include: | |
| Mortality costs | Yes |
| Morbidity costs: Lost workdays of the patient | Yes |
| Morbidity costs: Reduced productivity of the patient | Yes |
| Lost earnings of unpaid care givers | No |
| Other related nonhealth costs | No |
| Interest Rate Used to Discount Out-Year Costs | 4 % |
| 2. Category code(s) from the International Classification of Diseases, 9th Revision, Clinical Modification, (ICD-9-CM) for all diseases whose costs are included in this estimate: <u>016.0-016.5; 016.9; 054.1; 077.8; 077.9; 078.1; 095.4; 098.0-098.3; 112.2; 131; 185; 186; 188; 189.0-189.4; 189.8-189.9; 198.0-198.1; 222.2; 223.0; 223.1; 233.4; 233.7; 233.9; 250.4; 257; 277.3; 283.1; 344.61; 403-405; 446.0; 446.4-446.6; 572.4; 580; 581; 582; 583; 584; 585; 586; 590; 591; 592; 593.3-593.5; 593.7; 594; 595; 596; 597.0; 597.8; 598; 599.0; 599.6; 599.7; 600; 601; 602; 606; 607.84; 608.85; 625.6; 642.4-642.6; 695.4; 710.0; 753.1; 788; 997.5.</u> | |
| 3. Estimate Includes Costs: | |
| Of related conditions beyond primary, strictly coded ICD-9-CM category | No |
| Attributable to the subject disease as a secondary diagnosis | Yes |
| Of conditions for which the subject disease is an underlying cause | Yes |
| 4. Population Base for Cost Estimate (Total U.S. pop or other) | Total U.S. pop. |
| 5. Annual (prevalence model) or Lifetime (incidence model) Cost: | Annual |
| 6. Perspective of Cost Estimate (Total society, Federal budget, or Other) | Total Society |
| 7. Approach to Estimation of Indirect Costs | Human Capital |
| 8. <u>Source of Cost Estimate:</u> (Reference published or unpublished report, or address and telephone of person/office responsible for estimate) | |

The estimate of cost for total kidney and urologic diseases is published in the National Kidney and Urologic Diseases Advisory Board's 1990 Long-Range Plan, "Window on the 21st Century", and the methodology for calculating the cost estimates is included as Appendix A of that document. The estimates were generated by a health economist (Doug Brown), using counts of hospitalization and ambulatory medical care visits due to kidney and urologic diseases reported from the following sources: a) National Hospital Discharge Survey; b) Health Care Financing Administration, Medicare provider analyses and review data, 1985 (unpublished); c) Department of Veterans Affairs, for the year ending September 30, 1986, first listed diagnoses, (unpublished); d) National Ambulatory Medical Care Survey; e) Drug Utilization in the U.S.,

1985: Seventh Annual Review (U.S.) Food and Drug Administration; f) National Center for Health Statistics: Health, United States, 1987; g) National Nursing Home Survey, 1985; h) NORC-HCFA Physicians's Practice Cost Study for 1983; i) Mortality statistics are from the US Vital Statistics records from 1985.

9. Other Indicators of Burden of Disease:

Professional and voluntary groups such as the American Society of Nephrology, the National Kidney Foundation, the Polycystic Kidney Disease Research Foundation, the American Urologic Association, the American Foundation for Urologic Research, the Interstitial Cystitis Association, etc.

10. Commentary:

Under the auspices of the Interagency Coordinating Committee, these cost estimates are currently in the process of being revised. The updated estimates will be current as of 1991, the most recent year for which data are available from all sources. The results of this effort will be available by the end of the summer of 1995. Until the update based on the 1991 data is complete, the estimates based on 1985 data represent the most comprehensive estimate of costs of nephrologic and urologic conditions available. The assignment of ICD-9 CM codes to certain disease categories will change for the 1991 cost estimates, however, for the purposes of the Cost of Illnesses draft. ICD-9 CM codes for the cost estimates by disease are listed as documented in the National Kidney and Urologic Diseases Advisory Board's 1990 Long Range Plan.

- The costs associated with hospitalizations and ambulatory medical care visits were estimated in 1990, using 1985 national data as the source data. HCFA data on costs were used as the major indicator of costs of hospitalizations. The NORC-HCFA Physicians's Practice Cost Study for 1983, done in 1984, was the source of estimates of costs associated with doctors visits. Costs for patients less than age 65 were assumed to be the same as those for persons over age 65.
- Direct costs are all expenses incurred at a hospital or skilled nursing facility, as well as in ambulatory care. The 1985 estimate of direct costs does not include non-prescription drugs and medical sundries. Direct hospital costs are estimated as cost per day, using the HCFA data, and data from the National Hospital Discharge Survey. Hospitalizations for which a nephrologic or urologic disease code was listed either as first mentioned, second mentioned or any mentioned were listed. Costs during those hospitalizations were weighted such that costs from hospitalizations in which a K&U disease was the primary cause were multiplied by 0.9 to get the cost due to that disease, if the K&U disease was the second mentioned, the cost was multiplied by 0.5, and if the K&U disease was mentioned in any other position, the cost of that hospitalization was multiplied by 0.05. The sum of all costs due to K&U diseases was obtained.
- The 1985 estimate of indirect costs is the estimate of value of products and services that cannot be produced due to physician visits, hospital stays, or premature death. Because

many of the patients with KU diseases are older than 65 and presumed to be retired, the impact on productivity is lower than is seen when looking at diseases from all causes.

Indirect hospitalization costs include the present value of earnings forgone for patients on hemodialysis or with kidney transplants, costs for supplies, outpatient services associated with a hospital stay, skilled nursing facilities, and home health care services associated with any given stay. Value of production foregone is calculated assuming that each person lost a day of work for each day that they were hospitalized. The number of days lost for hospitalizations with kidney and urologic diseases listed as the primary, secondary, and other diagnosis for the 65+ year age group was determined using HCFA data, then multiplied by the percent of the population employed, to estimate the actual number of days lost from work. For those less than 65 years, the National Hospital Discharge Survey was used to determine days lost. Value of production foregone in patients with ESRD was calculated using the following data and assumptions: in 1983 the employment rate of ESRD patients was 22.3% (40.3% in those with transplants), it is assumed that without the K&U disease these people would have been employed at the same rate as the general population, and it is assumed that patients with ESRD do not live the same expected lives as the general population.

- Deaths due to kidney and urologic diseases were ascertained using the ICD-9 disease codes and the Vital Statistics database. Deaths due to kidney and urologic diseases may be underestimated. This has been shown to be the case for deaths due to end-stage renal disease.
- Cost of deaths was estimated by computing the present value of the future earnings of these people. Using the 1985 employment rate and weekly earning by age and gender from the January 1986 issue of Employment and Earnings, the earnings profile was tracked over the life cycle and discounted to the present using a 4% rate of discount. Expected lives was obtained for all persons from the Bureau of the Census, and reductions in expected lives for those with kidney or urologic disease were made on a sliding scale by age. No person was assumed to work beyond age 70.
- Office visit fees are computed from the NORC-HCFA Physicians's Practice Cost Study for 1983. For each disease, the appropriate fee was chosen from kidney or urologic disease specialists, scaled by 10% to bring them to the 1995 level, and augmented to reflect the cost of ancillary services associated with the office visit, including x-rays, injections, and complete blood counts.
- Nursing home costs were estimated by evaluating those with a primary diagnosis of diseases of the genitourinary system, and patients in nursing homes who were incontinent. It was assumed that 10% of the yearly cost of being in a nursing home would be attributed to incontinence. If kidney and urologic diseases were the primary and secondary diagnoses, 100% and 50% respectively of the nursing home charges were attributed to K&U diseases.
- Prescription drug costs were estimated using the National Prescription Audit reported in the Food and Drug Administration publications "Drug Utilization in the United States - 1985:

Seventh Annual Review, December 1986 (PB87-149902). NAMCS reported that 2.8% of drugs prescribed are K&U drugs. The average cost of drugs to treat K&U diseases was estimated by expert opinion to be \$50 in 1985.